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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/986,696	12/08/97	JEJELOWO	M 97U001

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EXAMINER

RABAGO, R

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 03/20/00

14

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/986,696**

Applicant(s)

**Jejelowo et al.**

Examiner

**R. Rabago**

Group Art Unit  
**1713**



☒ Responsive to communication(s) filed on Jan 9, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 10-14, 16-23, 25-32, and 51-57 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 10-14, 16-23, 25-32, and 51-57 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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### DETAILED ACTION

1. Amendment to the claims, presentation of new claims 54-57, and associated remarks filed 1/19/00 are acknowledged.
2. Rejections under 35 USC 102 over each of Doyle and Harrington are withdrawn in view of amendment.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 112*

4. Claims 10-11, 14, 16-23, 25-26, 28-31, 51-53 and 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(I) Claims 20, 52 and 53 are rejected as indefinite because the addition of the word “type” to an otherwise definite expression extends the scope of the expression so as to render it indefinite. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955).

(ii) Claims 10-11, 14, 16-19, 21-23, 25-26, 28-31, 51 and 55-57 are rejected as indefinite because no clear definition of the term “bulky” is provided in either the claims or in the

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specification. While exemplary species are mentioned, the intended scope of the claims cannot be determined.

Applicant's arguments have been fully considered but they are not persuasive. Regarding (I), applicants have incorrectly asserted that the word "type" has been deleted from all claims. Regarding (ii), it is repeated that the non-limiting exemplary species from the specification do not properly define the claimed subject matter, and the art does not appreciate a sufficiently clear definition of "bulky" to add reasonable clarity to this term. Note Ewen et al. (US 5,416,228) wherein "bulky" refers to all groups with spacial displacement greater than a methyl group (col. 3, line 66), or Ewen (US 4,927,797) wherein "bulky" refers to an alkyl or cycloalkyl group containing at least one secondary or tertiary carbon atom (claim 1), or Ewen et al. (US 5,688,735) wherein "bulky" refers to alkyl, cycloalkyl, aryl, alkoxy, and dialkylamino (see abstract) and also may include silicon, germanium and tin (col. 3, lines 63-65), or Harrington (US 5,621,054) wherein "bulky" refers primarily to C<sub>3</sub>-C<sub>30</sub> hydrocarbyl (col. 3, lines 39-41). In sum, the non-limiting description and species given in the specification in combination with other definitions understood in the art as corresponding to "bulky" renders the term essentially meaningless with respect to the instant claims, and provides no reasonable guidance for one of ordinary skill in the art attempting to determine the metes and bounds of the claimed subject matter.

The newly cited references do not constitute a new ground of rejection, but are included as additional evidence in support of the original ground of rejection.

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***Claim Rejections - 35 USC § 103***

5. Claims 10-12, 14, 16, 19, 28-30, 51, 52, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrington (US 5,621,054).

The reference discloses olefin polymerization using a hafnocene catalyst wherein the Cp ligand contains a substituent, in the presence of a cocatalyst (col. 3-4; Examples 1-3). Although the working examples use a t-butyl substituent rather than the claimed "linear or iso" alkyl group, patentee clearly states that common alkyl groups are satisfactory for use at the required substitution site (col. 4, lines 16-32). By exemplifying t-butyl, patentee has particularly pointed to alkyl substituents of the size corresponding to those claimed instantly. One of ordinary skill in the art would be motivated to use simple linear or branched alkyl substituents, inclusive of common C<sub>3</sub>-C<sub>10</sub> linear or iso alkyl groups, because patentee has stated that such use results in effective polymerization.

The record contains no evidence of unexpected results for the claimed process as opposed to that described in the reference which makes comparison with the closest prior art and is commensurate in scope with the claimed subject matter (i.e. scope of metallocenes, monomers, activators, and reaction conditions).

6. Claims 10-14, 16, 17, 20, 27-32, 51-54, 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle et al. (US 5,387,660).

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The reference discloses olefin polymerization using a hafnocene catalyst wherein the Cp ligand contains a substituent, in the presence of a cocatalyst (col. 2-3; Examples 6-7). Although the working examples use a t-butyl substituent rather than the claimed "linear or iso" alkyl group, patentee clearly states that common alkyl groups are preferred for use at the substitution site, and points particularly to C<sub>1</sub>-C<sub>5</sub> alkyl groups (col. 3, lines 51-53). Of the approximately 15 structural isomers corresponding to C<sub>1</sub>-C<sub>5</sub> alkyl, approximately half meet the limitation "linear or iso", and therefore the reference is deemed to fairly suggest the claimed substituent. One of ordinary skill in the art would be motivated to use a hafnocene within the scope of the instant claims for the polymerization of olefins because patentee has stressed the use of a substituted hafnocene, and has set forth a group of substituents which substantially overlaps with the group specified in the instant claims. Reasonable success would be expected using such combinations.

The record contains no evidence of unexpected results for the claimed process as opposed to that described in the reference which makes comparison with the closest prior art and is commensurate in scope with the claimed subject matter (i.e. scope of metallocenes, monomers, activators, and reaction conditions).

7. Claims 10-14, 16-23, 25, 26, 28-31, and 51-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jejelowo et al. 5,281,679 for the reasons set forth in item 13 of Paper No. 12, mailed 10/12/99.

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Applicant's arguments have been fully considered but they are not persuasive. Applicants persist in arguing that the rejection is infirm because the reference does not address improvements in catalytic activity. However, the position that a reference must suggest desirability of a substitution for the same reason as applicants' purpose has no legal basis. See MPEP 2144 at 2100-115, col. 2. In view of the numerous cases cited therein, it has been accepted that it is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. In the instant case, the reference is specifically directed toward polymerization using metallocenes which have C<sub>3</sub>-C<sub>5</sub> alkyl substituted Cp (see examples of Jejelowo '679, col. 17-18), and of the nine polymerizations shown in the table at col. 17-18, five use ligand structures within the scope of the instant claims (i.e. linear or iso-substituted Cp). The only modification required to meet the claims would be the use of hafnium rather than zirconium, and the reference provides explicit motivation to use hafnium at col. 7, lines 42-43: "hafnocenes, zirconocenes and titanocenes are most preferred." Patentee has provided motivation to make applicant's invention, and the fact that patentee does not suggest the same reason as applicants for making the claimed invention is immaterial.

8. Claims 18, 19, 21-23, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle et al. (US 5,387,660), optionally in view of Tsutsui (US 5,714,426).

Parent claims are discussed with respect to the primary reference above. Doyle discloses all aspects of the claimed invention except for the use of a supported catalyst and the use of gas-

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phase conditions. However, such conditions are entirely conventional in the art, and one of ordinary skill in the art would be motivated to use them in the routine optimization of the copolymerization process, with reasonable success expected. See Tsutsui col. 9, lines 50-67, and col. 14, line 8. One of ordinary skill in the art would reasonably look to Tsutsui for additional guidance in optimizing the polymerization disclosed in Doyle because the same monomers and highly similar hafnocene species are used.

In traversal, applicants have recited essentially the same argument as that against the rejection over Jejelowo '679. In response, applicants are referred to item 7 above.



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***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rob Rabago whose telephone number is (703) 308-4347. The examiner can normally be reached from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are: (703) 305-5408 (official), (703) 305-3599 (official after final) and (703) 306-3429 (unofficial).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

RRabago



March 15, 2000



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